CLAIMS

1. A stent comprising a coating based on a polymer of hyaluronic acid characterized in that the said hyaluronic acid polymer is an ester derivative of hyaluronic acid.

2. A stent according to claim 1 in which the said hyaluronic acid ester derivative has all or some of the carboxyl groups of the hyaluronic acid esterified with alcohols selected from those of the aliphatic, arylaliphatic, cycloaliphatic and heterocyclic series.

3. A stent according to claim 2, in which:

when the said alcohols are of the aliphatic series they are selected from straight or branched saturated or unsaturated alcohols having from 2 to 12 carbon atoms, optionally substituted with one or more groups selected from hydroxide, amine, aldehyde, mercaptan or carboxyl groups or groups derived from these such as for example esters, ethers, acetals, ketals, thioethers, thioesters, carbamides; in particular when the said alcohols are saturated aliphatic alcohols they are selected from methyl, ethyl, propyl, isopropyl, normal butyl, isobutyl, ter-butyl, amyl or pentyl alcohols; when the said alcohols are bivalent aliphatic alcohols they are selected from the alcohols ethylene glycol, propylene glycol, butylene glycol, and when the alcohol is a

trivalent aliphatic alcohol it is preferably glycerine; when the said alcohols are amino alcohols, they are selected from aminoethanol, aminopropanol, aminobutanol and their dimethylene- or diethyleneamine derivatives, piperidine ethanol, pyrrolidine ethanol or piperazine ethanol; when the said alcohols are carboxy alcohols, they are selected from lactic, tartaric, maleic or glycolic acids; when the said alcohols are unsaturated aliphatic alcohols they are preferably allyl alcohols,

when the said alcohols are of the arylaliphatic series they are selected from those having a benzene optionally substituted with from 1 to 3 methyls or hydroxyls or halogen atoms, in particular fluorine, chlorine, bromine and iodine, and in which the aliphatic chain has from 1 to 4 carbon atoms and is optionally substituted by one or more groups selected from primary amine groups, mono- or dimethylated groups or from pyrrolidine or piperidine groups, in particular they are benzyl alcohol or phenylethyl alcohol,

when the said alcohols are of the cycloaliphatic series they are selected from those mono- or polycyclic alcohols containing from 3 to 34 carbon atoms and optionally containing from 1 to 3 hetero atoms selected from O, S, N and optionally substituted with one or more groups selected from hydroxyl, amine, aldehyde,

mercaptan or carboxyl groups or groups derived from these such as for example esters, ethers, acetals, ketals, thioethers, thioesters, carbamides; in particular when the said cycloaliphatic alcohols are monocyclic they are selected from those containing from 5 to 7 carbon atoms, optionally substituted with one or more groups selected from hydroxyl, methyl, ethyl, propyl, isopropyl, and in particular they are cyclohexanol, cyclohexandiol, inositol or menthol.

4. A stent according to any one of the preceding claims in which the degree of esterification of the said hyaluronic acid ester derivative varies from 50% to 100% of the carboxyl groups in the hyaluronic acid.

5. A stent according to claim 4 in which the degree of esterification varies from 70% to 100% of the carboxyl groups in the hyaluronic acid.

6. A stent according to any one of claims from 1 to 5 in which the alcohol is benzyl alcohol and the degree of esterification is equal to 100% of the carboxyl groups in the hyaluronic acid.

7. A stent according to any one of claims from 1 to 5 in which the alcohol is benzyl alcohol and the degree of esterification is equal to 75% of the carboxyl groups in the hyaluronic acid.

8. A stent according to any one of the preceding

claims in which a pharmacologically active ingredient is associated with the said hyaluronic acid polymer coating.

9. A stent according to claim 8 in which the said active ingredient associated with the said hyaluronic acid polymer coating is selected from active ingredients having an anti-inflammatory, antiproliferative or antimigratory action and/or immunosuppressants.

10. A stent according to claim 8 in which the said active ingredient is 4-[(4-methyl-1-piperazinyl)methyl]-N-[4-methyl-3-[[4-(3-pyridinyl)-2-pyrimidinyl]amino]-phenyl]benzamide methane sulphonate.

11. A stent according to claim 9, in which when the active ingredient is an active ingredient having an anti-inflammatory action it is associated with the hyaluronic acid polymer coating in a quantity of between 0.001 mg and 10 mg.

12. A stent according to claim 9, in which when the active ingredient is an active ingredient having an anti-proliferative action it is associated with the hyaluronic acid polymer coating in a quantity of between 0.0001 mg and 10 mg.

13. A stent according to claim 9, in which when the active ingredient is an active ingredient having an anti-migratory action it is associated with the

hyaluronic acid polymer coating in a quantity of between 0.0001 mg and 10 mg.

14. A stent according to claim 9, in which when the active ingredient is an immunosuppressant it is associated with the hyaluronic acid polymer coating in a quantity of between 0.0001 mg and 10 mg.

15. A stent according to claim 10, in which when the active ingredient is 4-[(4-methyl-1-piperazinyl)methyl]-N-[4-methyl-3-[[4-(3-pyridinyl)-2-pyrimidinyl]amino]-phenyl]benzamide methane sulphonate, this is associated with the hyaluronic acid polymer coating in a quantity of between 0.001 mg and 10 mg.

16. A stent according to any one of the preceding claims in which the thickness of the hyaluronic acid polymer coating on the stent varies from 0.5 microns to 40 microns, preferably between 1 and 30 microns, even more preferably between 5 and 10 microns.

17. A stent according to any one of the preceding claims in which the active ingredient and the hyaluronic acid are released from the hyaluronic acid polymer coating over a prolonged time.

18. A stent according to claims 6 and 17 in combination in which the active ingredient and the hyaluronic acid are released from the hyaluronic acid polymer coating in a time exceeding one month.

19. A stent according to claims 7 and 17 in combination, in which the active ingredient and the hyaluronic acid are released from the hyaluronic acid polymer coating within two weeks.

20. A stent comprising a layer of hyaluronic acid covalently bound to the surface of the stent itself and a coating of hyaluronic acid polymer as described in any one of the preceding claims.

21. A stent according to any one of the preceding claims further comprising a second coating of a polymer having a hydrophobic nature with which a pharmacologically active ingredient is associated.

22. A stent according to claim 21 in which the said polymer coating having a hydrophobic nature is applied directly to the surface of the stent, beneath the said coating based on hyaluronic acid ester polymer.

23. A stent according to claim 21 or 22 in which the said polymer having a hydrophobic nature has a contact angle with water which is greater than 60°.

24. A stent according to claim 23 in which the said polymer having a hydrophobic nature is selected from polymethyl methacrylate, polybutyl methacrylate, polyisobutylmethacrylate, olefinic polymers, polybutadiene, polyisoprene, poly(acrylonitrile-butadiene-styrene) or polyvinyl acetate.

25. A stent according to claim 23 in which the said polymer of a hydrophobic nature is polystyrene.

26. A stent according to any one of claims from 21 to 25 in which the said active ingredient associated with the said polymer coating of a hydrophobic nature is selected from the active ingredients listed in claims 9 and 10.

27. A stent according to any one of claims from 21 to 26 in which the quantity of the said active ingredient associated with the said polymer coating of a hydrophobic nature is equal to the quantities indicated in claims from 11 to 15.

28. A stent according to any one of claims from 21 to 27 in which the thickness of the said polymer coating of a hydrophobic nature on the stent varies from 0.5 microns to 40 microns, preferably between 1 and 30 microns, even more preferably between 5 and 10 microns.

29. A stent according to any one of claims from 21 to 28 in which the said active ingredient is released from the said polymer coating of a hydrophobic nature in a time of one month.

30. A stent according to any one of claims from 21 to 29 in which the active ingredient and the quantity of active ingredient associated with the said two polymer coatings respectively is the same or different.

31. A stent according to any one of claims from 21 to 30 which further includes a layer of hyaluronic acid covalently bound to the said polymer coating of a hydrophobic nature.

32. A process for obtaining a stent according to any one of claims from 1 to 19 comprising the stages of:

a) dissolving the hyaluronic acid ester and the active ingredient in the same organic solvent to obtain a solution,

b) immersing and then removing the stent in the said solution,

c) removing the solvent by evaporation.

33. A process according to claim 32 in which the said organic solvent is a dipolar aprotic solvent.

34. A process according to claim 33 in which the said organic solvent is selected from dimethyl sulphoxide, N-methylpyrrolidone, dimethylformamide or hexafluoroisopropanol.

35. A process according to any one of claims from 32 to 34 for obtaining a stent according to claim 20 comprising a stage of pre-treatment of the surface of the stent to which a layer of covalently bound hyaluronic acid is applied.

36. A process according to any one of claims from 32 to 34 in order to obtain a stent according to any one

of claims from 21 to 30 in which the said stages a), b), c) are preceded by the following stages in order:

a^1) dissolving the polymer of a hydrophobic nature and the active ingredient in the same organic solvent to obtain a solution or a suspension,

b^1) immersing and then removing the stent in the said solution or suspension,

c^1) removing the solvent by evaporation.

37. A process according to claim 36 in which the said organic solvent is a low-boiling-point solvent having a boiling point at ambient pressure which is below 100°C, preferably below 80°C.

38. A process according to claim 37 in which the said organic solvent is selected from dichloromethane, methylene chloride, acetone, aliphatic hydrocarbons or cyclohexane.

39. A process according to any one of claims from 36 to 38 in order to obtain a stent according to claim 31 comprising a further stage d^1) in which a layer of covalently bound hyaluronic acid is applied to the polymer coating of a hydrophobic nature.

40. Use of a hyaluronic acid ester for the preparation of a coating for a stent for use in angioplasty.

41. Use according to claim 40 in association with

a pharmacologically active ingredient.